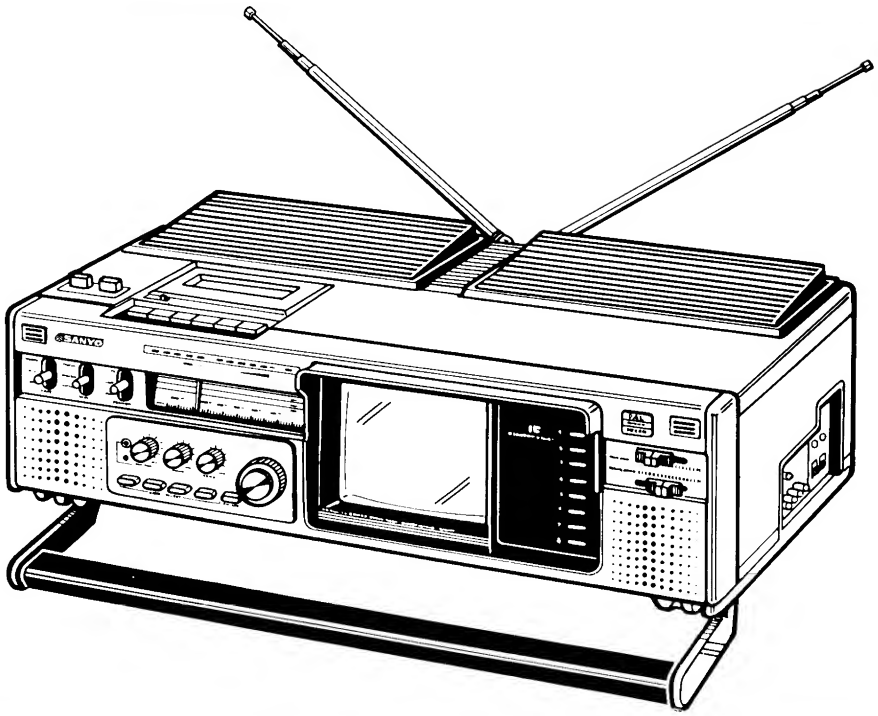
CTP-X400/X400A



Dual system
PAL/SECAM

COLOUR TELEVISION WITH 4 BAND RADIO & CASSETTE TAPE RECORDER

OPERATING INSTRUCTIONS

	Page
SANYO COLOUR	1
SAFETY PRECAUTION	1
POWER SUPPLY	2 ~ 4
ANTENNA	5
CONTROLS	6 ~ 7
TELEVISION OPERATION	8 ~ 9
RADIO OPERATION	10
TAPE RECORDER OPERATION	11 ~ 14
COMBINED OPERATION	15
MAINTENANCE HINTS	16
TROUBLESHOOTING	17
OUTSIDE INTERFERENCE ON T.V.	18
TECHNICAL DATA	19

We congratulate you to the acquisition of your Colour Television with 4 band radio & cassette tape recorder which has been manufactured using the most advanced technical knowledge available and with most modern production and testing methods.

- TV can receive the PAL/SECAM colour system.
- Sound IF circuit of TV can receive both 5.5MHz (CCIR countries) or 6.5MHz (OIRT countries).
- Radio can receive the 4 band of SW1/SW2/MW/FM.
- Tape recorder can use whichever tape of Normal/FeCr/CrO_2.

WARNING:

To Reduce The Risk Of Fire Or Electric Shock, Do Not Expose This Appliance To Rain Or Moisture.

To prevent electrical shock, do not remove cabinet. High Voltage are used in the operation of the set. This set is fully transistorized and does not contain any user serviceable components. Refer servicing to qualified personnel.

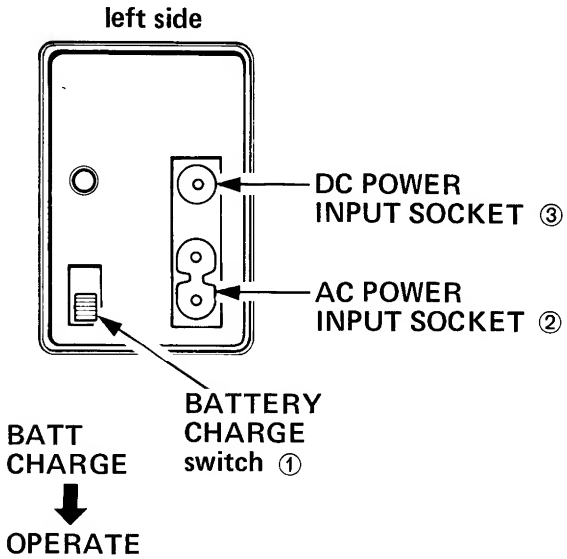
When the set is not to be used for an extended period of time, it is advisable to disconnect the power cord from the power outlet.

If you follow this manual carefully, we feel sure your service problems will be minimized. Refer to handy TROUBLESHOOTING on page 17.

So, please take time now to read this manual. You'll see how easy your new set is to operate — and enjoy.

READ AND RETAIN THIS MANUAL AND THE USAGE & SAFETY TIPS PAMPHLET INCLUDED WITH THIS TELEVISION.

NOTES: • *We have developed "Automatic Voltage Selector" which will set the power supply circuit to suit the voltage now the TV receiver is pluged in. The user is no need to set the manual voltage selector any more.*
This Automatic Voltage Selector is employed in this set.
• *The BATTERY CHARGE switch ① should be set to the "OPERATE" position.*
• *When the AC power cord is connected to the AC POWER INPUT SOCKET ②, the batteries are automatically disconnected.*



AC POWER OPERATION

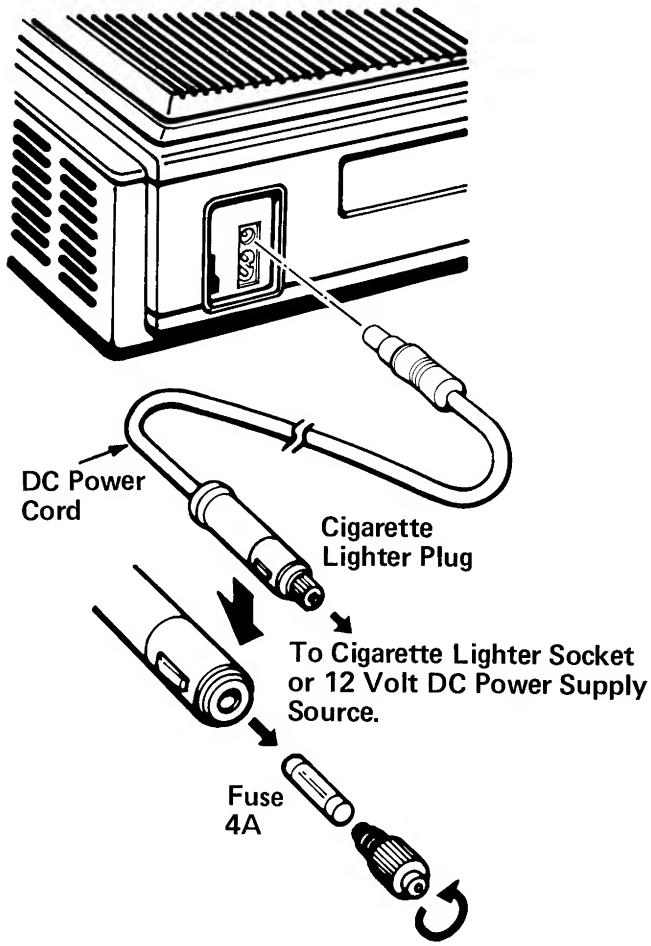
Connect one end of the AC power cord to the AC POWER INPUT SOCKET of the set and other end to the AC outlet.

EXTERNAL DC 12V (CAR BATTERY) POWER OPERATION

NOTE: • *The BATTERY CHARGE switch ① should be set to the "OPERATE" position.*

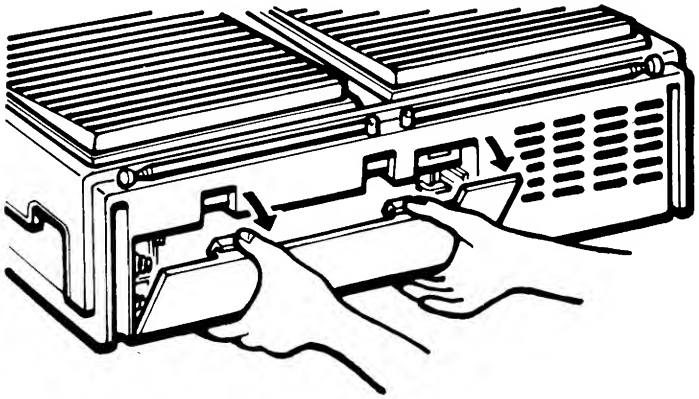
Connect the DC power cord to the DC POWER INPUT SOCKET ③. Plug the cigarette lighter plug of the DC power cord into the cigarette lighter socket.

NOTES: • *Do not operate the TV set on a car battery for an extended period.*
• *Long operation on the battery will consume much power charged in the battery and you may be unable to start the car engine.*
• *When the DC power cord is connected to the DC POWER INPUT SOCKET, the rechargeable and dry cell batteries are automatically disconnected.*

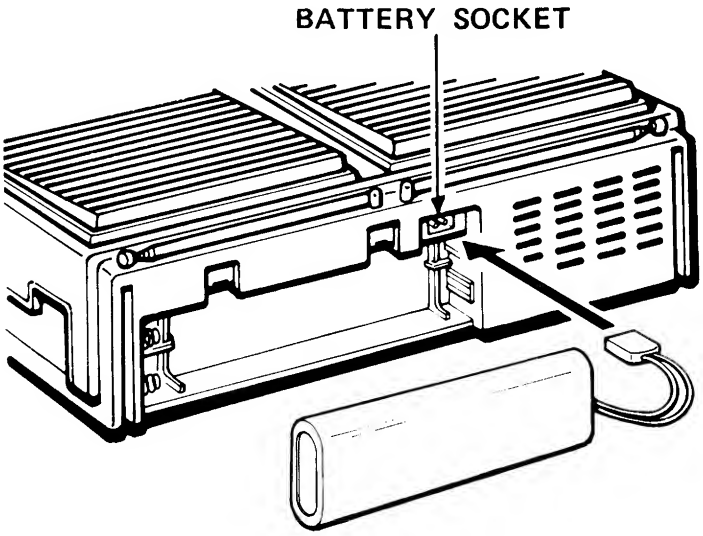


BATTERY POWER OPERATION
RECHARGEABLE BATTERY (OPTION)

1. Open the battery compartment lid as illustrated.



2. Insert the two pin polarized plug of the Battery Pack (Model NTP-10, optional) into the BATTERY SOCKET of the set.



3. Install the Battery Pack (Model NTP-10, optional) into the compartment. It will fit firmly by the holder as illustrated.

4. Close the battery compartment lid.

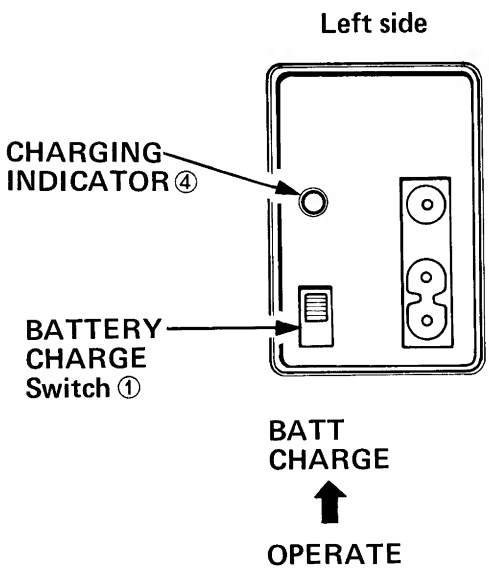
NOTES:
- *The BATTERY CHARGE switch should be set to the "OPERATE" position.*
- *A fully charged battery will operate the set for approximately 3 hours.*
- *The need for recharging the Battery Pack will be indicated when the picture shrinks in size and does not fill the screen. Refer to BATTERY CHECKING on page 4.*
- *Be sure to disconnect the AC or DC power cord from the AC or DC POWER INPUT SOCKETS of the set when using the set from the batteries.*

Battery Recharging

When the need for battery recharging is indicated, follow the steps below.

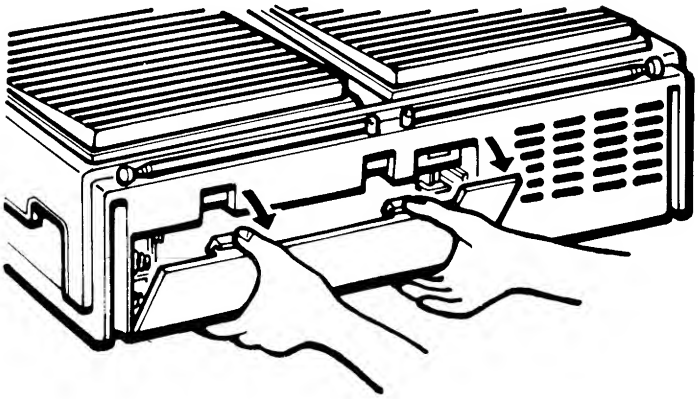
1. Connect the AC power cord to the AC outlet.
2. Set the BATTERY CHARGE switch to the "BATT CHARGE" position. The CHARGING INDICATOR ④ will be illuminated.
   The battery will be automatically charged.

NOTES:
- *A complete recharge will take approximately 20 hours.*
- *The battery may be recharged at any time by leaving the set plugged in while not in use so that the battery will always be fully charged and ready for portable operation.*



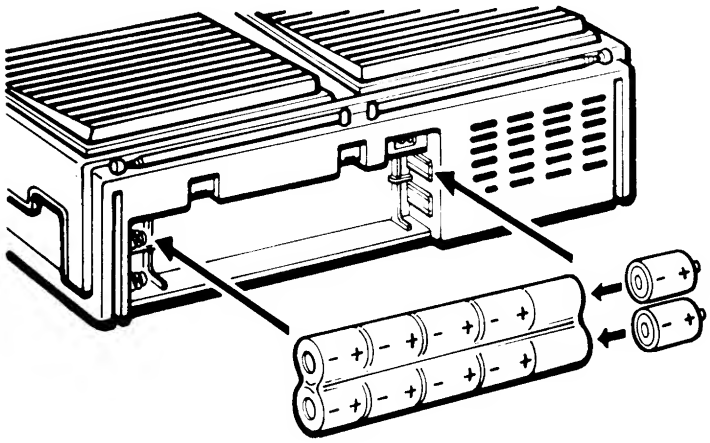
BATTERY POWER OPERATION
DRY CELL BATTERY (OPTION)

1. Open the battery compartment lid as illustrated.



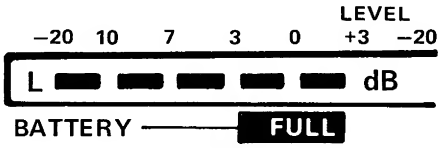
2. After inserting 10 "A-1" size flashlight batteries into the battery sleeve (provided in the battery compartment of the set), install it into the battery compartment as illustrated. Be careful about the polarity of each cell.
3. Closed the battery compartment lid.

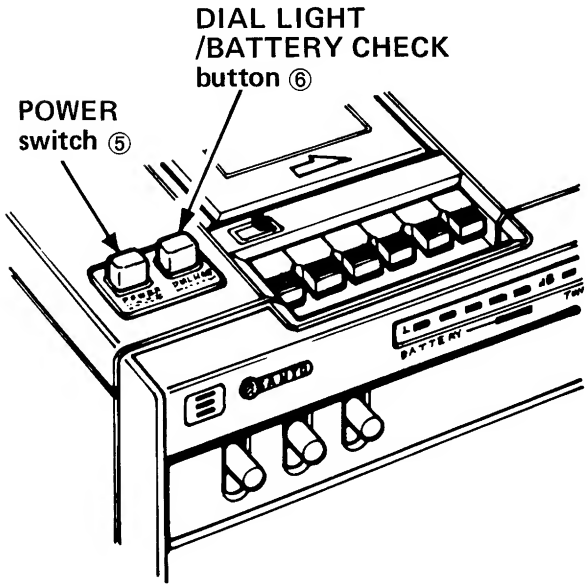
NOTES:
- *The BATTERY CHARGE switch should be set to the "OPERATE" position.*
- *Be sure to disconnect the AC or DC power cord from the AC or DC POWER INPUT SOCKET of the set when using the set from the batteries.*
- *Exhausted batteries may leak and damage the set.*



BATTERY CHECKING

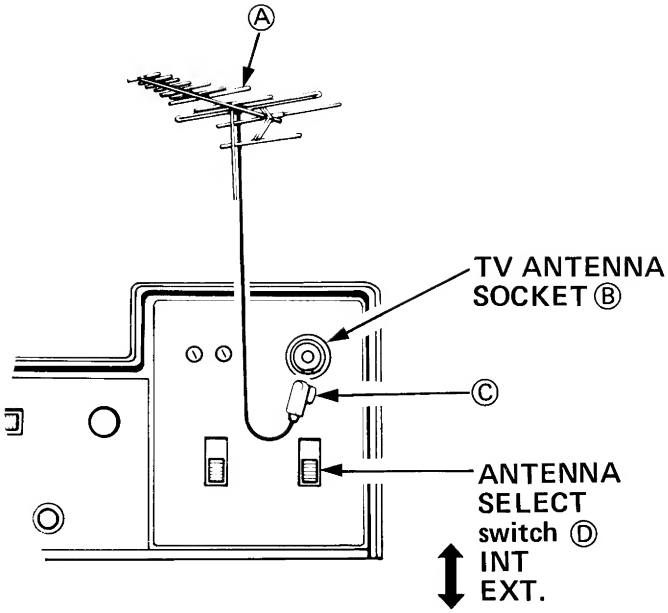
1. Press the POWER switch ⑤ to the "ON" (IN) position.
2. Press the DIAL LIGHT/BATTERY CHECK button ⑥.
3. The BATTERY INDICATOR (left VU/SOUND LIGHT EMITTING DIODE LEVEL INDICATOR) should indicate into the "FULL" area as shown in illustration.
   If the indicator does not reach the "FULL" area, the batteries are exhausted and all batteries must be replaced with new ones. If Rechargeable Battery Pack (Model NTP-10, optional) is used, recharge them.



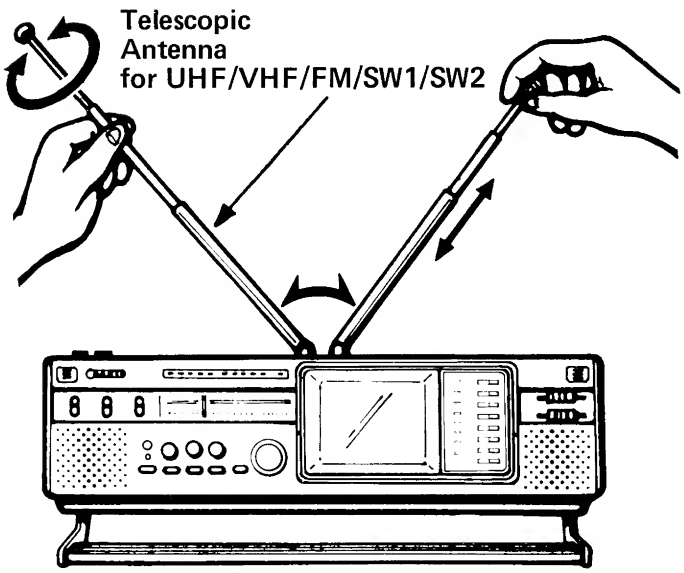


1. Set the ANTENNA SELECT switch Ⓓ to the "EXT" position. The antenna connection is equivalent to DIN 45 325 for combined UHF/VHF antenna Ⓐ with 75 ohm Coaxial connections.
   The antenna socket Ⓑ is placed on the right side of your set.
2. If your present antenna produces a clear reception of black/white pictures, then no alterations to existing antenna are necessary.
3. A colour picture of good quality requires a higher antenna signal than a black/white picture. If you adjust your set to a station with a weak colour signal, your T.V. set automatically changes to black/white reproduction.
   Connect a cable with plug Ⓒ from UHF/VHF antenna to antenna socket on right side.
   The telescopic antenna for UHF/VHF/FM/SW1/SW2 which comes with your set is designed to perform as well as any indoor antenna and will provide an excellent picture and sound in areas located near the transmitter.
   For best reception, it can be adjusted to virtually any position by extending or collapsing and/or tilting the rods. Set the ANTENNA SELECT switch Ⓓ to the "INT" position. Adjust the antenna by varying the length and angle of the rods until the clearest picture and sound is obtained.
   In some areas it will be necessary to use an outdoor antenna.
4. For all antenna circuit problems please consult your local dealer.

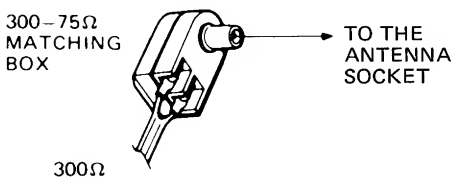
"Snow" or a weak picture is the result of either a weak signal or a poor antenna. Reflections of signals from mountains or high buildings will cause multiple images, "Ghosts". These abnormal conditions can be reduced to minimum by repositioning the antenna or by installing a new one suitable for your area.

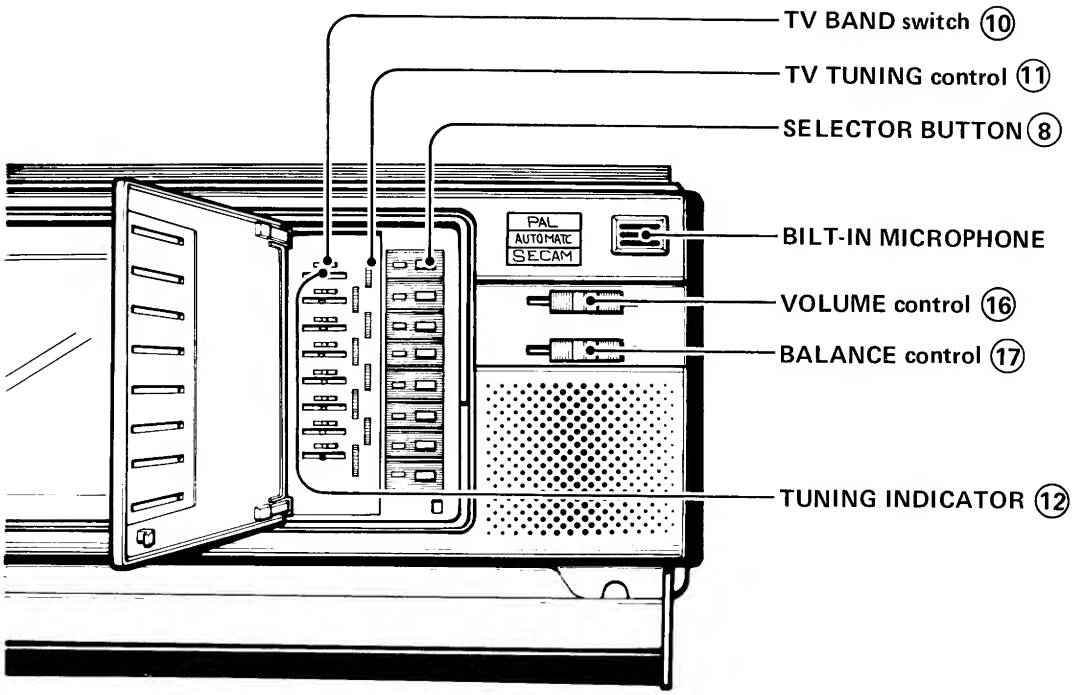


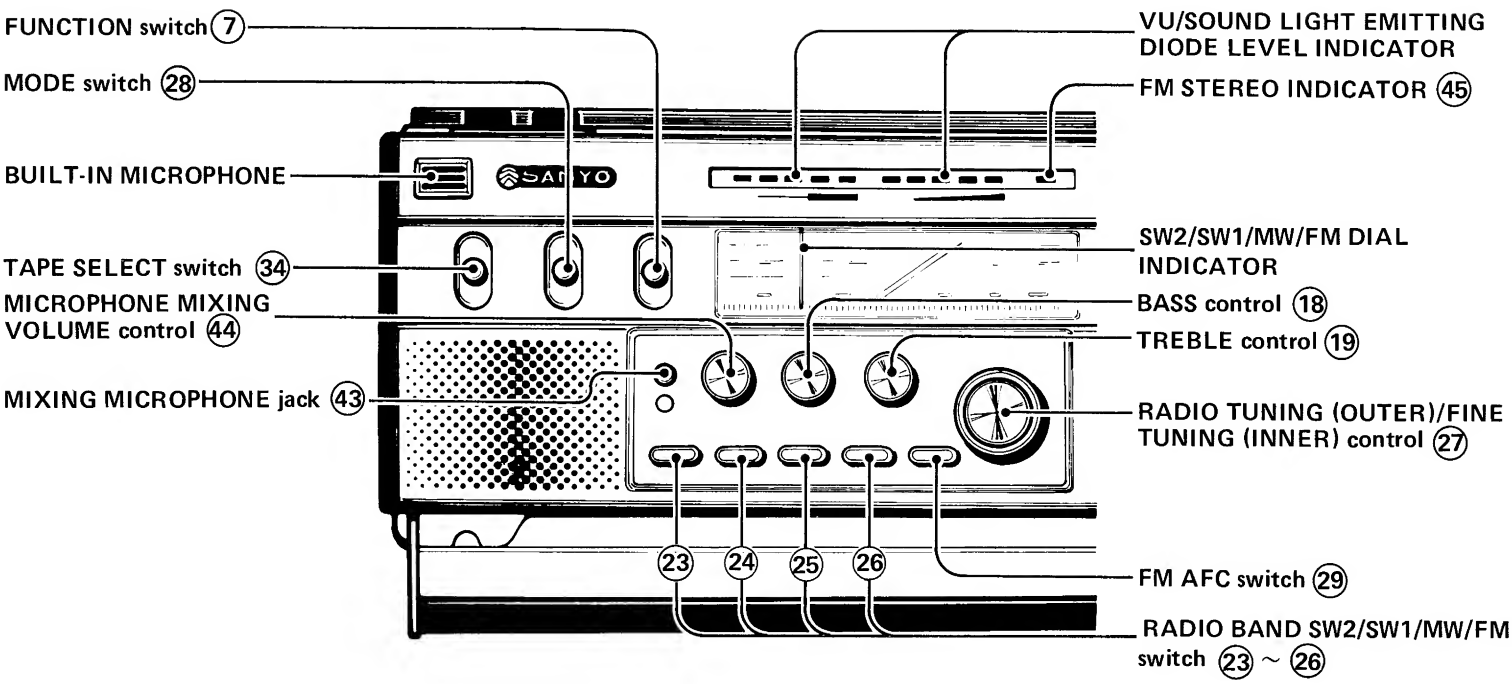
Right side

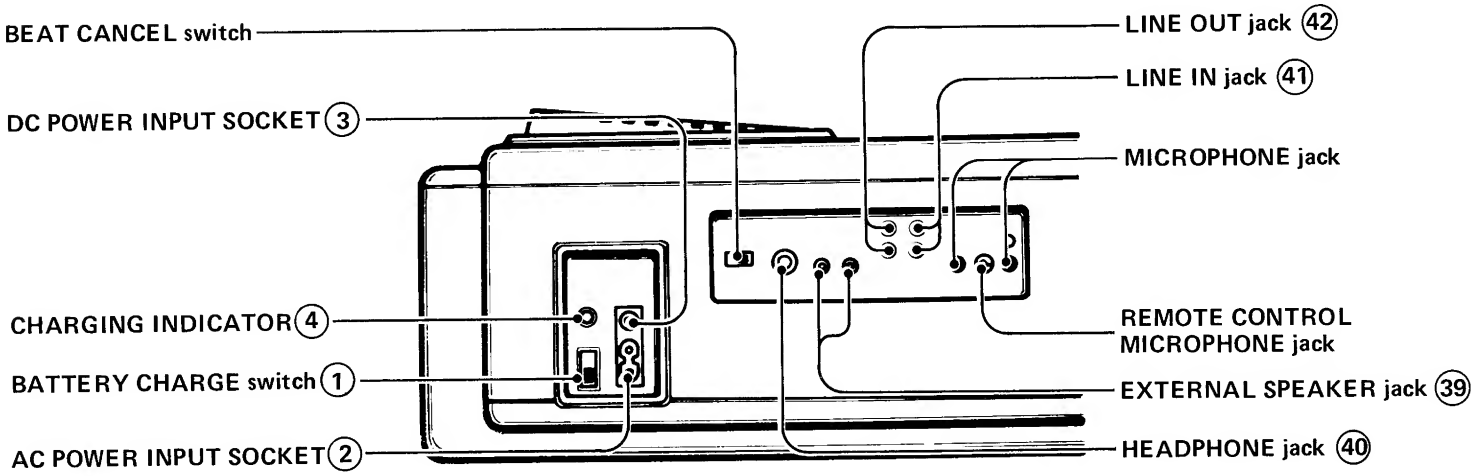


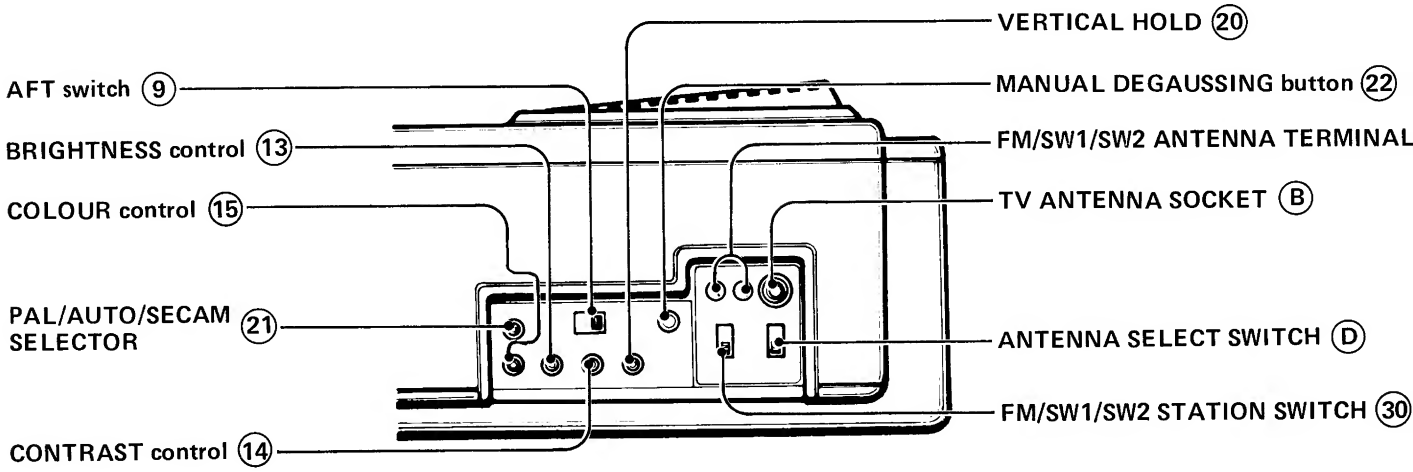
NOTE:
If 300 ohm ribbon is used, use the 300–75 ohm antenna matching box provided.

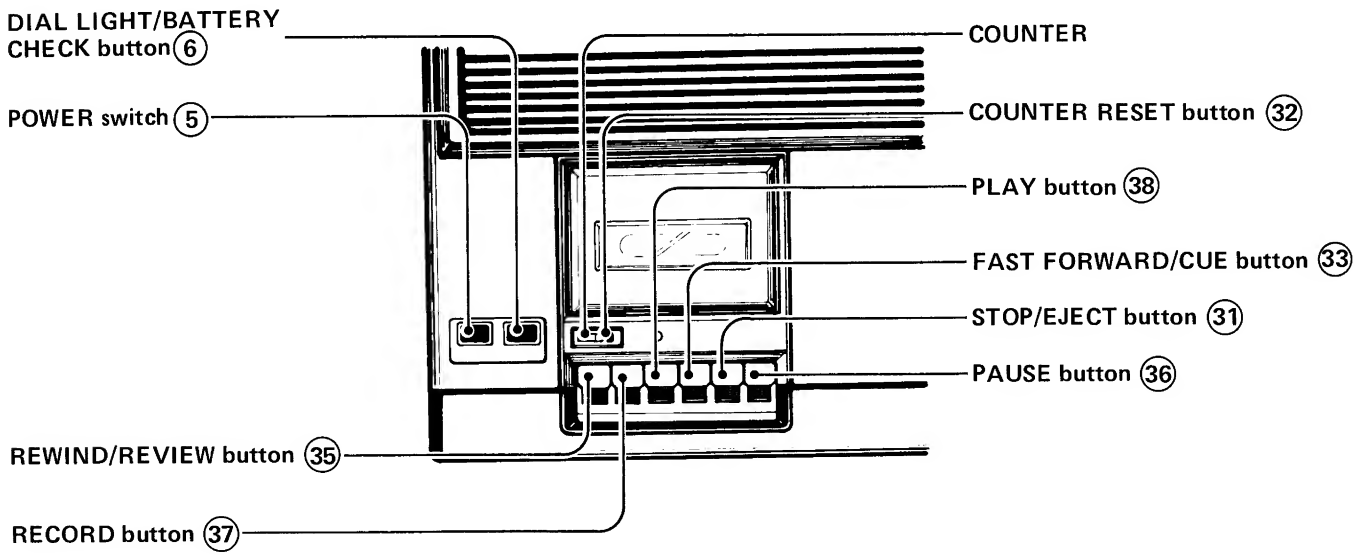



TV BAND switch ⑩
TV TUNING control ⑪
SELECTOR BUTTON ⑧
PAL
AUTOMATIC
SECAM
BILT-IN MICROPHONE
VOLUME control ⑯
BALANCE control ⑰
TUNING INDICATOR ⑫


FUNCTION switch ⑦
MODE switch ㉘
BUILT-IN MICROPHONE
TAPE SELECT switch ㉞
MICROPHONE MIXING VOLUME control ㊹
MIXING MICROPHONE jack ㊸
VU/SOUND LIGHT EMITTING DIODE LEVEL INDICATOR
FM STEREO INDICATOR ㊺
SW2/SW1/MW/FM DIAL INDICATOR
BASS control ⑱
TREBLE control ⑲
RADIO TUNING (OUTER)/FINE TUNING (INNER) control ㉗
㉓ ㉔ ㉕ ㉖
FM AFC switch ㉙
RADIO BAND SW2/SW1/MW/FM switch ㉓ ~ ㉖


BEAT CANCEL switch
DC POWER INPUT SOCKET (3)
CHARGING INDICATOR (4)
BATTERY CHARGE switch (1)
AC POWER INPUT SOCKET (2)
LINE OUT jack (42)
LINE IN jack (41)
MICROPHONE jack
REMOTE CONTROL MICROPHONE jack
EXTERNAL SPEAKER jack (39)
HEADPHONE jack (40)


AFT switch (9)
BRIGHTNESS control (13)
COLOUR control (15)
PAL/AUTO/SECAM SELECTOR (21)
CONTRAST control (14)
VERTICAL HOLD (20)
MANUAL DEGAUSSING button (22)
FM/SW1/SW2 ANTENNA TERMINAL
TV ANTENNA SOCKET (B)
ANTENNA SELECT SWITCH (D)
FM/SW1/SW2 STATION SWITCH (30)


DIAL LIGHT/BATTERY CHECK button (6)
POWER switch (5)
REWIND/REVIEW button (35)
RECORD button (37)
COUNTER
COUNTER RESET button (32)
PLAY button (38)
FAST FORWARD/CUE button (33)
STOP/EJECT button (31)
PAUSE button (36)

TURN TV SET ON

1. Press the POWER switch ⑤ to the "ON" (IN) position.
2. Set the FUNCTION switch ⑦ to the "TV" position.

NOTE: To turn off the Television, Press the POWER switch ⑤ to the "OFF/SLEEP" (OUT) position.

PROGRAMME SELECTION

1. To change programme, push the SELECTOR button ⑧. To set the different T.V. stations, refer to the below instructions "Setting the Programmes".

Setting the Programmes

The various channels can be pre-set in your T.V. set in which ever sequence you may choose.
It is suitable and more favourable to adjust the first programme to the first selector button, the second to the second selector button, and the third to the third selector button. For further programmes which you may receive the selector buttons (4 – 8) are at your disposal.

Setting Procedure
When pre-set adjustment is necessary, open the Control Box by pulling low of the door with your finger.

1. The AFT Switch ⑨ must be switched off.
2. Push the selector button ⑧ on which you would like to pre-set a programme. The lighted indicator will correspond this pushed selector button then indicates the correct switching.
3. Re-set the TV BAND switch ⑩ to the position corresponding to the channel to be tuned as follows:

CCIR Channels

VHF-Range	
Band I	: Channels 2 .... 4 (47 .... 68MHz)
Band III	: Channels 5 .... 12 (174 .... 230MHz)
UHF-Range	
Band IV.V	: Channels 21 .... 69 (470 .... 860MHz)

OIRT Channels

VHF-Range	
Band I	: Channels 1 .... 5 (48.5 .... 100MHz)
Band III	: Channels 6 .... 12 (174 .... 230MHz)
UHF-Range	
Band IV.V	: Channels 21 .... 69 (470 .... 860MHz)

4. Turn the TV TUNING control ⑪ corresponding to the selector button until the desired channel is indicated by the TUNING INDICATOR ⑫.
   Read the band I, III or IV/V scale on the indicator corresponding to the band switch. The indicator will indicate the approximate tuning position.
   The tuning control should be carefully adjusted for the best sound and picture on the desired channel.
5. Proceed in the same manner with the other programme pre-set, as explained under items 2-4.
6. After having pre-set the required programmes, switch on AFT and close the control box.

The programme pre-setting has now been correctly completed and the future programme selection is limited to pushing the selector buttons.

CONTROL SETTING

Adjust the brightness ⑬ and contrast ⑭ controls to desired levels.
Adjust the colour ⑮ control for proper colour intensity.
Adjust the Volume ⑯, Balance ⑰, Bass ⑱ and Treble ⑲ controls to your desired Sound and tone quality.

NOTES:
- *The BALANCE control provides a "CLICK" position in its slide-path. Normally best balance is obtained at this click position.*
- *When the VOLUME control is adjusted to a low level, LOUDNESS will be automatically compensated for better listening (at LOUDNESS range).*

AFT (AUTOMATIC FINE TUNING) SWITCH ⑨

AFT automatically maintains correct fine tuning. AFT operates only when the AFT switch in "ON" position.
Normally the best picture and sound will be obtained with the AFT ON. However under unusual conditions such as weak signal, unusual atmospheric conditions, inadequate antenna system or strong adjacent channel interference, turning off the AFT may provide a better picture.

VERTICAL HOLD ⑳

When the picture rolls up or down on the screen, adjust this control knob until there is a single, steady picture.

PAL/AUTO/SECAM SELECTOR ㉑

When this selector is set to AUTO position, this TV receiver can receive color programs of both PAL or SECAM systems. It is recommended to keep it always in AUTO position. If the receiving signal quality is poor (such as weak, ghost or distorted). In this case, this selector shall be set at either PAL or SECAM position according to the colour system of your receiving television signal.

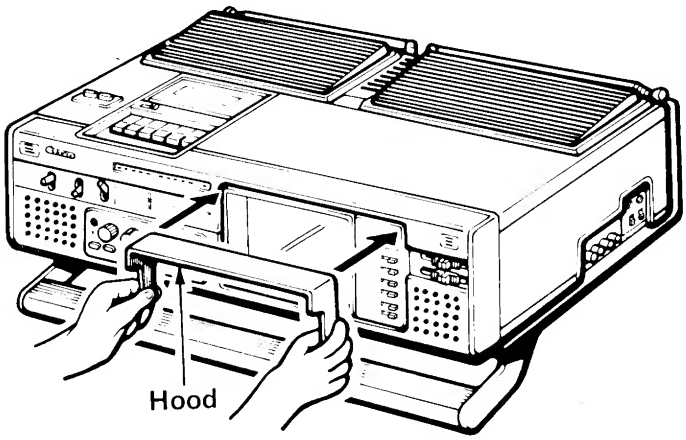
MANUAL DEGAUSSING BUTTON ㉒

This set is equipped with MANUAL DEGAUSSING Button, this permits you to move your receiver from one location to another without fear of color distortion. Residual magnetism that may be picked up by the receiver will be neutralized by simply pushing MANUAL DEGAUSSING button.

A.V. (Audio Vision) connection
Your T.V. set is prepared for the connection of AV apparatus (VCR, VTR etc.).
AV apparatus can be connected to the TV antenna socket.
For further detail in this connection, refer to the operating instructions for the AV apparatus.

HOOD MOUNTING

This set is equipped with a glare reducing hood for use when the set is operated in bright light. Mount the hood by inserting it into the grooved channel in the designated position on the front of the set.



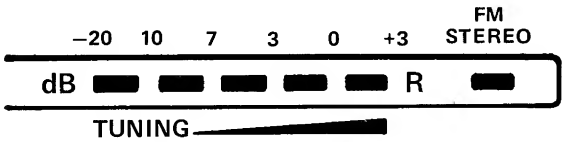
TURN RADIO SET ON

1. Press the POWER switch to the "ON" (IN) position.
2. Set the FUNCTION switch ⑦ to the "RADIO" position.

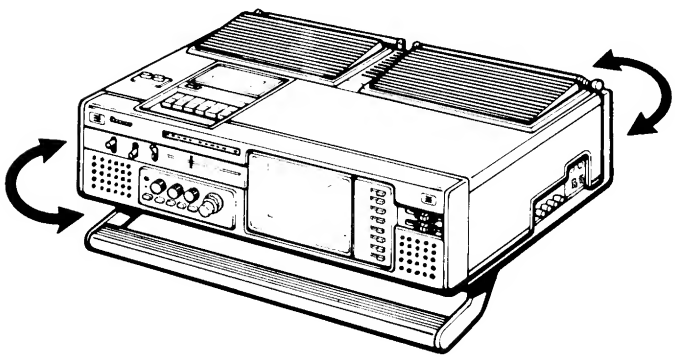
NOTE: To turn off the Radio, Press the POWER switch ⑤ to the "OFF/SLEEP" (OUT) position.

BROADCASTING SELECTION

1. Push the RADIO BAND switch (㉓ ~ ㉖) to your desired band.
   SW2 ㉓.... SW2 Broadcast (7.0 ~ 22.0MHz)
   SW1 ㉔.... SW1 Broadcast (2.3 ~ 7.0MHz)
   MW ㉕.... MW Broadcast (530 ~ 1,600KHz)
   FM ㉖.... FM Broadcast (88 ~ 108MHz).
2. Adjust the RADIO TUNING (OUTER)/FINE TUNING (INNER) ㉗ control to get maximum amount of red light showing on the TUNING INDICATOR (right VU/SOUND LIGHT EMITTING DIODE LEVEL INDICATOR). This will be the best tuning position available.



NOTES:
- *Press the DIAL LIGHT/BATTERY CHECK ⑥ button to illuminate the dials for easy RADIO tuning at night.*
- *For receiving an MW broadcast, the ANTENNA inside of the set is somewhat directional, reception from distant stations may sometimes be improved by rotating the set.*



CONTROL SETTING

Adjust the VOLUME ⑯, BALANCE ⑰, BASS ⑱ and TREBLE ⑲ controls to your desired sound and tone quality. The BALANCE control provides a "CLICK" position in its slide-path. Normally best balance is obtained at this click position. When the VOLUME control is adjusted to a low level, LOUDNESS will be automatically compensated for better listening (at LOUDNESS range).

MODE SWITCH ㉘

For receiving an MW/SW1/SW2 broadcast, set the MODE switch to the "MONO" (MONOPHONIC) position. For receiving a FM broadcast, set the MODE switch to the "STEREO" (STEREOPHONIC) position. The FM STEREO INDICATOR ㊺ will illuminate when a FM stereo broadcast is received. Set the MODE switch to the "EXPAND" position to obtain the matrix stereo sound.

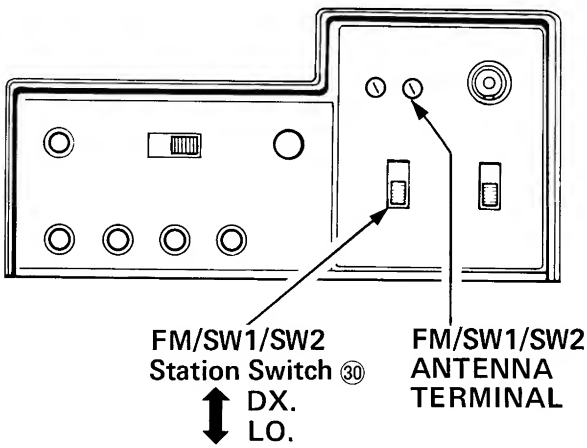
FM AFC (AUTOMATIC FREQUENCY CONTROL) SWITCH ㉙

After being tuned in a FM broadcast, push the FM AFC switch to the "ON" (IN) position. Thus, tuning frequency is locked in to your desired FM broadcast electronically.

FM/SW STATION SWITCH ㉚

If the received radio station is too strong, set the RADIO STATION switch to the "LO" position. Normally, set the switch to the "DX" position.

RIGHT SIDE



HELPFUL INFORMATION AND PREPARATION FOR RECORDING AND PLAYBACK

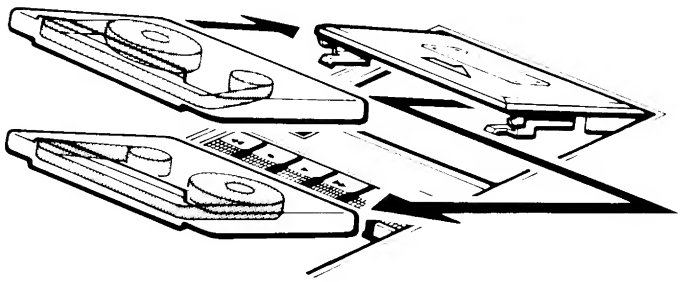
Check the Cassette Tape before Use

Make sure that the cassette tape has no slack before inserting the cassette in to the recorder. Unless the tape is tight, it may wind around the head mechanism and trouble may result. Use a pencil to take up slack on one of the reels.

Inserting and Removing Cassette

Open the cassette compartment lid by pressing the STOP/EJECT button ㉛. Insert the cassette with the full reel to the left (visible through the window) and tape slot toward you. The cassette fits into the cassette compartment only in the correct position. Close by pushing the top of the cassette compartment lid. This puts the cassette in place. Now the set is ready to operate. To use the second track, press the STOP/EJECT button and remove the cassette. Turn the cassette over and re-insert it as previously described.

NOTE: When the end of the tape has been reached during fast forward or rewind mode, the reels will stop. Then the STOP/EJECT button should be pressed. At the end of the tape while playing back or recording, the PLAY button or the RECORD and PLAY buttons will be automatically released. Then the set will be in the stop mode.



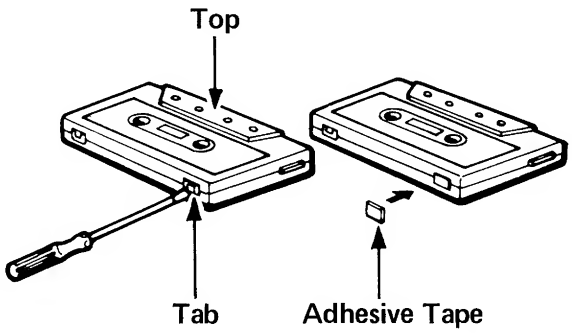
Counter

The 3-digit counter built into this set permits instant location of any point on a tape. When recording at the beginning of a cassette, set the counter to "000" by pressing reset button ㉜. As you record various selections, make a note of the counter number at the beginning of each selection. To playback a particular selection, use the FAST FORWARD/CUE button ㉝, to move the tape until the counter registers the previously noted number for that selection. It is better for your tape, if you finish or rewind it before removing it.

To Avoid Accidental Erasure

Whenever a recording is made, the sound previously recorded is erased automatically. To protect valuable recordings from accidental erasure, the set and cassette are equipped with safety devices. To keep the recorded material permanently, break out the tabs on the back of the cassette with a knife or screw driver. To protect the TOP side of the tape from accidental erasure break out the right side tab. To record on a cassette from which tabs have been removed, simply attach adhesive tape over the tab opening.

NOTE: The RECORD button will not lock in when a cassette tab is removed from the corresponding side.



Tape Select Switch ㉞

This switch is effective for both recording and playback modes. Before recording or playback, set the TAPE SELECT switch for the type of the tape being used.

NORMAL . . . . Standard tape or low noise high output tape
CrO_2 . . . . . Chromium dioxide tape
FeCr . . . . . Ferri chromium dioxide tape

Fast Forward and Rewind

For fast forward or rewind of the tape, press the FAST FORWARD/CUE ㉝ or REWIND/REVIEW button ㉟. The button will lock and the tape will be wound at high speed. Press the STOP/EJECT button ㉛ when desired location has been reached. Neither button will release automatically at the end of the tape. At this time you must press the STOP/EJECT button.

Cue Mode

To rapidly locate a desired portion during playback, press the FAST FORWARD/CUE or REWIND/REVIEW button. The tape will run forward or rewind at high speed with "cue" sound. The "cue" sound will be heard as an aid to locating the desired section of the tape. When pressure on the button is removed, the set will return to the normal play operation.

IMPORTANT: Do not press the RECORD button in during the playback, review and cue operations, or erasure will occur.

Automatic Stop

When the end of the tape has been reached the RECORD and PLAY buttons (or the PLAY button) will be released automatically unless the PAUSE button is depressed.

Pause Button (36)

To momentarily stop the tape movement without canceling the recording or playback mode, press the PAUSE button. Press it again to re-start the tape.

VU/Sound LED (LIGHT EMITTING DIODE) Level Indicator

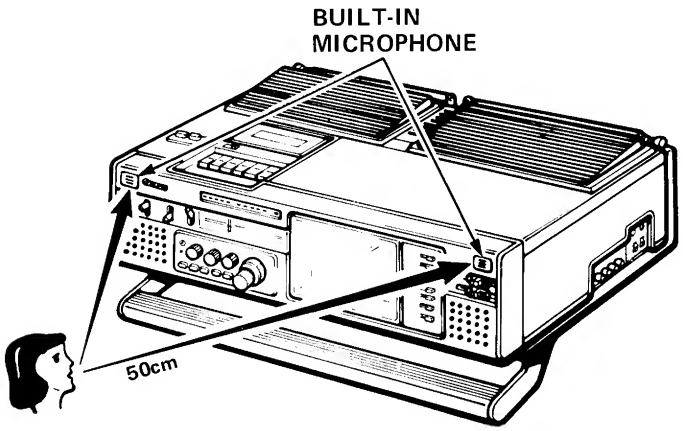
Shows recording level in reading the LED (s) from left to right while recording or during playback.

RECORDING OPERATION

Recording through the Built-in Microphone

1. Set the FUNCTION switch to the "TAPE" position.
2. Press the STOP/EJECT button and insert the cassette into the cassette compartment, then close the lid.
3. Set the TAPE switch for the type of the tape being used.
4. Set the MODE switch for the mode of source recording.
5. Press the RECORD (37) button.
6. Speak in a normal voice at a distance of approximately 50cm away from the set.
7. Press the STOP/EJECT button to stop recording at your desired position. At the end of the tape, the RECORD and PLAY buttons will be released automatically.

NOTES: • *In case of a stereo recording source like an orchestra, the left and right sound will be reversed during playback.*
• *With this mode of recording, monitoring can not be done to avoid acoustic feedback.*



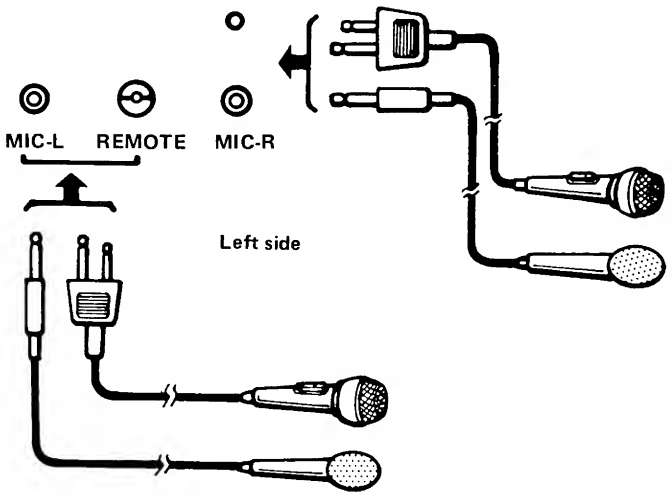
Recording from the External Microphone

1. Set the FUNCTION switch to the "TAPE" position.
2. Press the STOP/EJECT button and insert the cassette into the cassette compartment, then close the lid.
3. Set the TAPE switch for the type of the tape being used.
4. Set the MODE switch for the mode of source recording.
5. Connect the external microphones (optional) into the MICROPHONE jacks (and REMOTE CONTROL MICROPHONE jack if you use a microphone with remote switch).

NOTE: The large (MIC) jack is the microphone circuit which may also be used with a telephone pick-up or similar devices. The small (REMOTE) jack is the remote control circuit and a footswitch may be connected to this jack. Either of these accessories may be obtained from your dealer.

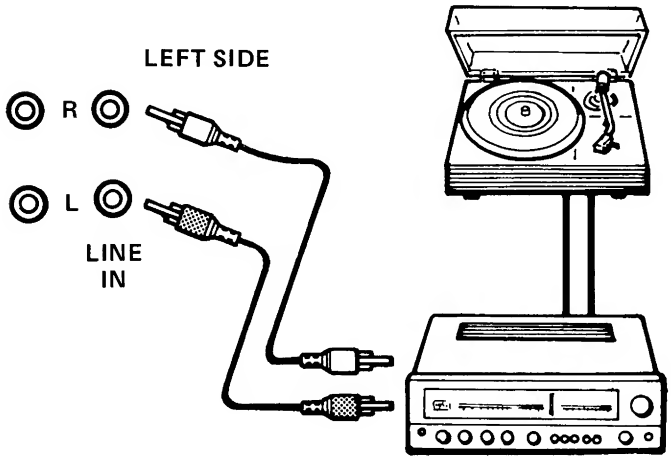
6. Press the RECORD button.
7. Speak in a normal voice at a distance of approximately 10cm away from the microphones.
8. Press the STOP/EJECT button to stop recording at your desired position. At the end of the tape, RECORD and PLAY buttons will be released automatically.

NOTES: • *A remote control switch on the microphone can be used to start and stop recording momentarily.*
• *If you record a monophonic recording, connect a microphone into the "MIC-L" (left MICROPHONE) jack and set the MODE switch to the "MONO" position.*



Recording from the External Sound Source

1. Set the FUNCTION switch to the "TAPE" position.
2. Press the STOP/EJECT button and insert the cassette into the cassette compartment, then close the lid.
3. Set the TAPE switch for the type of the tape being used.
4. Set the MODE switch for the mode of source recording.
5. Connect patch cord (optional) from the output of your amplifier, receiver or other signal sound source to the LINE IN jack ㊶ of the set.
6. Press the RECORD button.
7. Operate your audio equipment as you would normally.
8. Since you can monitor through the speaker regardless of recording level, adjust the VOLUME, BASS, TREBLE and BALANCE controls to your desired sound and tone quality.
9. Press the STOP/EJECT button to stop recording at your desired position. At the end of the tape, the RECORD and PLAY buttons will be released automatically.



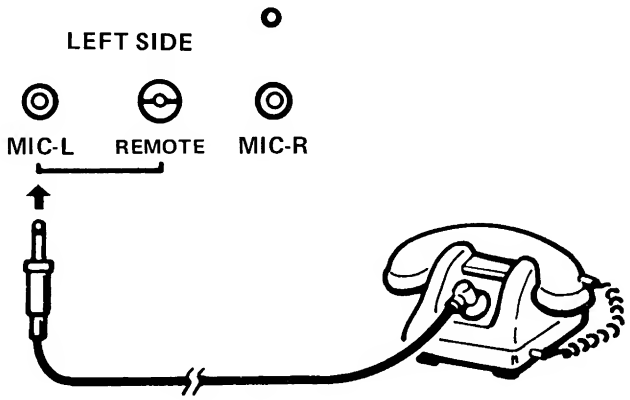
Recording from the Built-in TV Sound or Radio

1. Set the FUNCTION switch to the "TV" or "RADIO" position and tune in a desired station as described in TELEVISION & RADIO OPERATION section.
2. Press the STOP/EJECT button and insert the cassette into the cassette compartment, then close the lid.
3. Set the TAPE switch for the type of the tape being used.
4. Set the MODE switch for the mode of sound being received.
5. Press the RECORD button.
6. Since you can monitor the sound through the speakers regardless of recording level, adjust the VOLUME, BASS, TREBLE and BALANCE controls to your desired sound and tone quality.
7. Press the STOP/EJECT button to stop recording at your desired position. At the end of the tape, the RECORD and PLAY buttons will be released automatically.

NOTE: When recording an AM radio program on tape, an irritating beat sound may sometimes appear, caused by interaction between the radio frequency and bias frequency. If this occurs, set the BEAT CANCEL switch to the other position.

Recording from the Telephone

1. Set the FUNCTION switch to the "TAPE" position.
2. Press the STOP/EJECT button and insert the cassette into the cassette compartment, then close the lid.
3. Attach the suction cap of the telephone pick-up (optional), which is available through your dealer, to the telephone case and connect the pick-up jack into the "MIC-L" (left MICROPHONE) jack of the set.
4. Press the RECORD button.
5. Press the STOP/EJECT button to stop recording at your desired position. At the end of the tape, the RECORD and PLAY buttons will be released automatically.



ALC (Automatic Level Control) Recording

This set has an automatic level control (ALC) circuit, which automatically keeps the optimum recording level regardless of the input signal condition. So there is no needed for adjustment of the VOLUME, BASS, TREBLE and BALANCE controls on all kinds of recording.

Quick One Touch Record Operation

Press the RECORD button in during the playback, the set will change instantly to record mode from playback.

Erase Recording

To erase the pre-recorded tape without recording, follow the steps bellow.

1. Set the FUNCTION switch to the "TAPE" position.
2. Press the STOP/EJECT button and insert the cassette into the cassette compartment, then close the lid.
3. Insert the ERASE PLUG (optional) into the "MIC-L" (left MICROPHONE) Jack.
4. Press the RECORD button.
5. Press the STOP/EJECT button to stop erasing at your desired position. At the end of the tape, RECORD and PLAY buttons will be released automatically.

PLAYBACK OPERATION

1. Set the FUNCTION switch to the "TAPE" position.
2. Press the STOP/EJECT button and insert the cassette into the cassette compartment, then close the lid.
3. Set the TAPE switch for the type of the tape being used.
4. Set the MODE switch for the mode of source recorded.
5. Press the PLAY button ㊳ .
6. Adjust the VOLUME, BASS, TREBLE and BALANCE controls to your desired sound and tone quality.
7. Press the STOP/EJECT button to stop playback at your desired position. When the tape is wound completely, the PLAY button will be released automatically.

NOTES:
- *When the VOLUME control is adjusted to the low level, LOUDNESS will be automatically compensated for better listening (at LOUDNESS range).*
- *The BALANCE control provides a "click" position in its slide-path. Normally best balance is obtained at this click position.*
- *The right and left VU/SOUND LED LEVEL INDICATORS will show the recording output level.*

SLEEP TIMER OPERATION

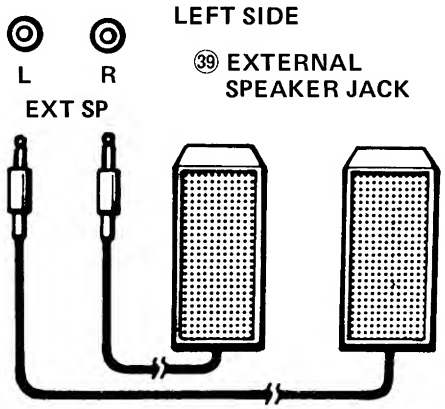
If you desire to listen to a radio or TV program in bed, the auto-stop mechanism works as a sleep timer. The radio and TV operating time is determined by the cassette used.

C-30	Cassette	15 minutes
C-60	Cassette	30 minutes
C-90	Cassette	45 minutes
C-120	Cassette	60 minutes

1. Press the POWER switch ⑤ to the "ON" (IN) position.
2. Set the FUNCTION switch ⑦ to the "RADIO", or "TV" position.
3. Tune in desired station.
4. Press the STOP/EJECT button ㉛ and insert a cassette, then close the lid.
5. Press the POWER switch to the "OFF/SLEEP" (OUT) position.
6. Press the PLAY button ㊳. If you wish to record the radio or TV sound program, press the RECORD button ㊲.
7. When the tape is wound completely, the PLAY button or the RECORD and PLAY buttons will be released and the radio or TV power will shut off automatically.
8. To listen to a program (radio or TV) continuously, press the POWER switch to the "ON" (IN) position.

EXTERNAL SPEAKER JACKS ㊴

If you wish to use the earphones (optional) or external speakers (4 ohm impedance), connect them to the EXTERNAL SPEAKER jacks. The internal speaker is automatically disconnected when external speaker jacks are plugged in.



HEADPHONE JACK ㊵

For private listening, connect a headphone (low impedance, optional) to the HEADPHONE jack. The internal and external speakers are automatically disconnected.

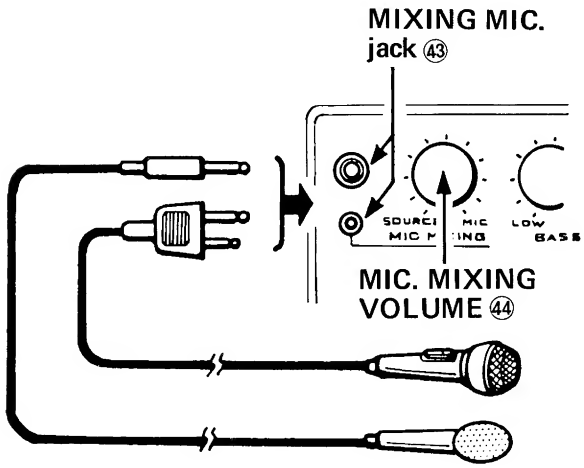
LINE OUT JACKS ㊷

If you wish to listen to a radio, TV sound or Tape source program through your amplifier, connect patch cords (optional) from the LINE OUT jacks of this set to your amplifier.

MICROPHONE MIXING

With TV or Radio Sound

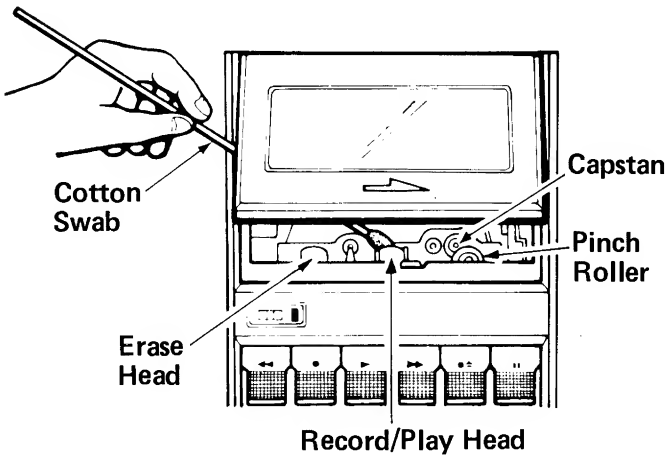
1. Set the FUNCTION switch ⑦ to the "TV" or "RADIO" position as you desire. If you wish to mix with TV or radio, press the POWER switch ⑤ to the "ON" (IN) position.
2. Tune in a desired station by the RADIO tuning control or programme selector button.
3. Set the MODE switch ㉘ for the mode of source received.
4. Connect an external microphone (optional) into the MIXING MICROPHONE jacks ㊸ on the front of the set.
5. Speak into the microphone.
6. Adjust the MICROPHONE MIXING VOLUME ㊹ and VOLUME control ⑯ as you desire.
7. Adjust the VOLUME, BASS, TREBLE and BALANCE controls to your desired sound and tone quality.
8. To cancel the microphone mixing, remove the external microphone.



With Recorded Tape

1. Set the FUNCTION switch to the "TAPE" position.
2. Press the STOP/EJECT button and insert the cassette into the cassette compartment, then close the lid.
3. Set the TAPE switch for the mode of sound being received.
4. Set the MODE switch for the mode of source recorded.
5. Connect an external microphone (optional) into the MIXING MICROPHONE jacks on the front of the set.
6. Press the PLAY button.
7. Speak into the microphone.
8. Adjust the MICROPHONE MIXING VOLUME and VOLUME control as you desire.
9. Adjust the VOLUME, BASS, TREBLE and BALANCE controls to your desired sound and tone quality.
10. Press the STOP/EJECT button to stop playback at your desired position.

- Avoid excessively hot locations. Damage to the cabinet or premature picture tube burn-out may result.
- The bottom and rear of the cabinet are provided with ventilation holes. Do not place the receiver on a thick cloth, or attempt to cover openings in any way.
- The surface of the cabinet can be damaged if not properly maintained. Many common household aerosol sprays, cleaning agents, solvents and polishes will cause permanent damage to the fine surface. Best results for cleaning are obtained with mild soap and water, and a soft cloth for drying.
- Cleaning of Heads, Pinch Roller and Capstan
  To insure continued high performance from your set, periodically clean the heads and pinch roller to remove dust or reddish-brown oxide accumulated. Failure to clean these parts will result in inferior sound quality, distortion of recordings, deterioration of high frequency reproduction, and inconsistent tape speed. Proceed as follows;
  1. Open the cassette compartment lid by pressing the STOP/EJECT button.
  2. Press the PLAY button.
  3. Moisten a cotton applicator with head cleaner and apply to the face of both heads, rubbing gently until all traces of dirt or oxide are removed. Also clean the surface of pinch roller and the capstan.
  4. Dry, clean, and polish the face of heads with a piece of cloth.



- Do not expose this appliance to direct sun for a long period of time. It may cause damage to the cabinet. If can become too hot inside of a car parked in the sun or at the beach receiving strong direct sunray, etc. To prevent damage to the cabinet, shade the set from direct sunray. (This also applies to cassette tapes.)
- Do not operate the set when it becomes too hot from leaving it in the sun or inside the car on a hot day, wait until it cools off.
- Do not leave your tapes near a source of magnetism. This may result in erasure of the recorded contents of the tape.

NOTE: Please check the following items before requesting your dealer or service station to repair.

TELEVISION OPERATION

1. Does not operate

a. Check the connection of the AC power cord.
b. Check that batteries have enough capability to operate.
c. Check if the FUNCTION switch is set to "TV" position.
d. Check if the POWER switch is set to "ON" (IN) position.
e. Check if the BATTERY CHARGE switch is set to "OPERATE" position.

2. No color, Poor color

a. Adjust COLOR control.
b. Adjust TV TUNING control.
c. Check antenna connections.
d. Re-orient antenna.

3. No color

a. Try a different channel, if OK, the problem is probably station trouble.
b. Check if station is broadcasting in color.

4. Poor color

a. Probably local interference, such as an appliance.
b. Adjust BRIGHTNESS control.

RADIO OPERATION

1. No sound (noise) in radio mode

a. Check that the FUNCTION switch is set to "RADIO" position.
b. Check that the VOLUME control knob is not set to the minimum position.
c. Check that the RADIO BAND switch is set to your desired band.
d. Check that ANTENNA SELECT switch is at desired position.
e. Check if the RADIO STATION switch is set to "DX" position.

2. Sound quality deteriorates

a. Re-adjust the RADIO TUNING control to your desired station exactly.
b. Check if the batteries are exhausted. (if operating on batteries)

3. The FM STEREO INDICATOR does not light during reception of an FM broadcast.

a. Check if the MODE switch is set to "STEREO" position.

TAPE RECORDER OPERATION

1. The cassette compartment lid does not close

a. Check if the cassette fits into the cassette compartment.
b. Check if the PLAY button has been depressed already.

2. The tape does not move

a. Check that the batteries have enough capability to operate.
b. Check that the PAUSE button is not depressed.
c. Check if the cassette is installed.
d. Check that the remote switch on the microphone is not set to "OFF" position.

3. No sound (noise) by depressing the PLAY button

a. Check that the VOLUME control is not set to the minimum position.
b. Check that the PAUSE button is not depressed.
c. Check that the FUNCTION switch is not set to "RADIO" or "TV" position.

4. Does not record from the built-in TV or Radio

a. Check that the LINE IN cords are not connected to the LINE IN socket.

5. The RECORD button can not be depressed

a. Check if the tape has been installed.
b. Check if the tabs of the cassette have been removed.

6. The sound quality is distorted or out of tune on a playback mode

a. Check that batteries have capability to operate.
b. Clean the heads and pinch roller if dust or reddish-brown oxide has accumulated.
c. Check the TAPE switch be sure you are playing tape that matches with the tape position.

"SNOW" OR WEAK PICTURE

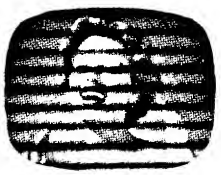
This condition occurs when the signal to the receiving antenna is too small. For the best possible reception, an outdoor antenna should be used.

DIATHERMY

Electrically operated medical equipment such as diathermy apparatus may produce a herringbone pattern across the picture and, if severe, may even obliterate part of the picture. This interference normally is of short duration, and cannot be removed by receiver adjustment. If severe, the noise source must be located and corrected.

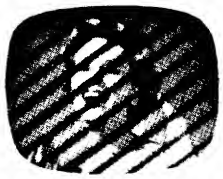
SOUND BARS IN PICTURE

Misadjustment of the TV TUNING control may cause "sound bars" on the screen. The sound bars are eliminated by properly adjusting the TV TUNING control.



RADIO INTERFERENCE

Interference in the form of ripples or unstable pictures may result from neighboring receiving or transmitting equipment, flashing neon signs, trolley wires or electrical appliances. If receiver adjustment does not eliminate this interference, the noise source must be located and corrected.



NOTE

Depending on the marketing destination and the installation location, TV picture tube is extremely susceptible to the effects of terrestrial magnetism. Therefore, in order to ensure that the color picture will be of a good quality, follow the direction below. Determine the countries where the set is to be sold and installed according to the set's model number. (For details, refer to the list below.)

Model CTP-X400

Middle & Near East
Afghanistan
Bahrain
Egypt
Iran
Iraq
Jordan
Kuwait
Lebanon
Libya
Oman
Pakistan
Qatar
Saudi Arabia
Syria
United Arab Emirates
Cyprus (Note 1)
Turkey (Note 1)
Yemen Arab Rep.
Yemen People's Dem. Rep.

Europe
Austria
Belgium
Denmark
Germany East
Germany West
Gibraltar (Note 1)
Greece
Iceland
Italy
Malta (Note 1)
Netherlands
Portugal
Spain
Switzerland
Yugoslavia
Czecho Slovakia
Hungary
Poland
Bulgaria

Africa
Algeria
Morocco
Tunisia
Sahara

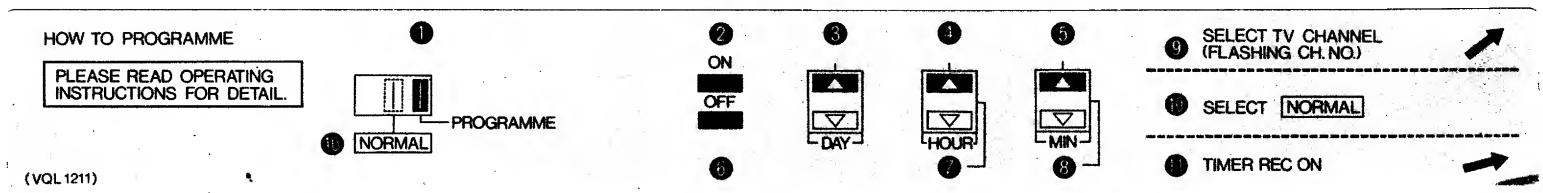
Asia
China
Bangladesh

Model CTP-X400A

Africa
Ethiopia (Note 1)
Ghana
Kenya
Liberia (Note 1)
Nigeria
Rhodesia (Note 1)
Sierra Leone (Note 1)
Somalia (Note 1)
Sudan
Tanzania
Uganda
Zambia (Note 1)
Gabon
Ivory Coast
Zaire Rep.

Asia
Indonesia
Malaysia
Singapore
Sri Lanka
Thailand
India (Note 1)
Borneo

Tahiti



Note 1: Countries indicated under Note 1 do not have a color telecasting service. However, black-and-white telecasting facilities are already available and so the foundations have been laid for color telecasting with the PAL or SECAM system to pave the way for color reception.

Part No. 3403081 B4BE

Power Source	AC 110/127/220/240 Volts. 50Hz/60Hz (AUTOMATIC SELECTION)
	DC 12V
Power Consumption	AC 48 watt
	DC 28 watt
Speaker	12cm x 2
	5cm x 2
Dimensions	525mm x 165mm x 365mm
Weight	10.3kg
Sound Output	3 watt + 3 watt
Semiconductors	10 ICs
	72 Transistors

TV

Colour System	PAL/SECAM
Receiving Channel	VHF 2 ~ 12 (CCIR)/1 ~ 12 (OIRT) [B/D]
	UHF 21 ~ 69 [G/K]
Antenna Input Impedance	75 ohm
Picture Tube	15cm Diagonal, 55 degree
Video IF	38.0MHz
Sound IF	32.5MHz (B/G)
	31.5MHz (D/K)

RADIO

Receiving Band	FM: 88 ~ 108MHz
	MW: 530 ~ 1,600KHz
	SW1: 2.3 ~ 7.0MHz
	SW2: 7.0 ~ 22.0MHz
Antenna Input Impedance	300 ohm

CASSETTE RECORDER

Recording System	AC bias, 4 tracks stereo
Erasing System	AC Erase
Tape Speed	4.75 cm/sec (1-7/8 i.p.s).

NOTE

This Set does not work properly in a foreign countries of which transmission system and power source differ from the design specifications. Refer to the technical data for the design specifications.

SANYO ELECTRIC CO., LTD.
SANYO ELECTRIC TRADING CO., LTD.

Part No. 3402826a (B4BE)